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Pulpwood Production in the North-Central Region by County, 1984

James E. Blyth and W. Brad Smith

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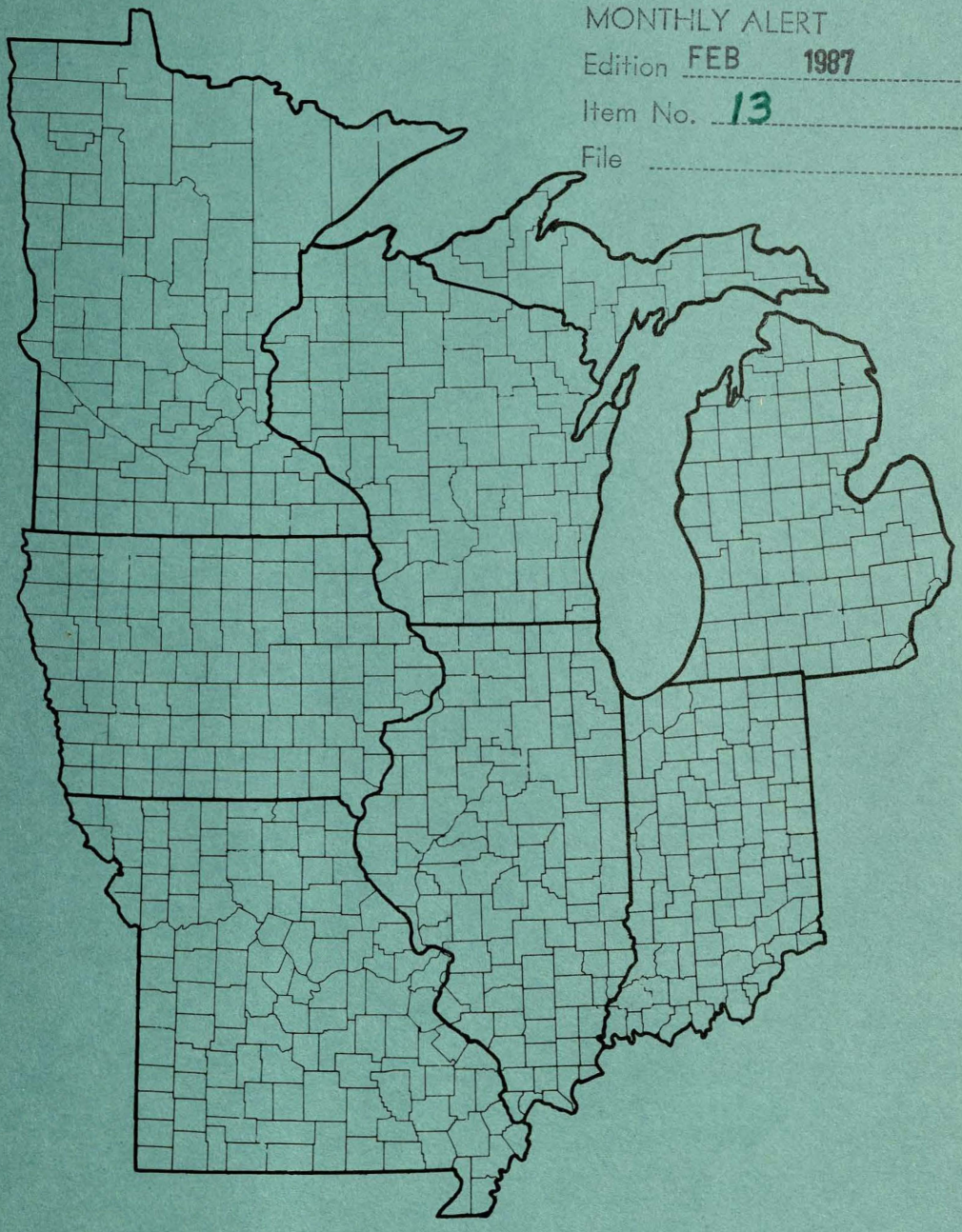

North Central Forest Experiment Station
Forest Service—U.S. Department of Agriculture
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St. Paul, Minnesota 55108
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HIGHLIGHTS

Lake States

Pulpwood production rose 10 percent to a record 7.19 million cords in 1984. The aspen cut surpassed the 1983 peak by 251,000 cords. Harvests of hard maple and soft maple reached record levels. Output from softwoods climbed in every species group except hemlock, tamarack, and cedar. Eight percent of the total production was whole-tree chips, compared to 9 percent in 1983; aspen remained the preferred species. Output rose 13 percent for flakeboard plants and 9 percent for pulpmills. Production set records in each State and advanced 13 percent in Minnesota, 11 percent in Michigan, and 7 percent in Wisconsin. Minnesota output exceeded 2 million cords for the first time. Aspen accounted for 74 percent of the roundwood cut in Minnesota.

For the fourth consecutive year, softwood residue imports from Canada dropped and were only 12,000 cords in 1984. Twenty-three percent of Wisconsin's pulpwood requirements came from out-of-State.

Central States

Central States pulpwood production fell 12 percent to 395,000 cords. Production dropped in each State except Iowa. About 7 out of 10 cords were residue from wood-using mills. Indiana accounted for 52 percent of the output. Two-thirds of the output was exported to other States.

Pulpwood receipts fell to 135,000 cords from 148,000 cords in 1983. Only 3,000 cords were imported.

Exports to other States declined for the first time in 6 years but are likely to continue to account for 2 out of 3 cords produced.

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PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION BY COUNTY, 1984

James E. Blyth, *Principal Market Analyst, and* **W. Brad Smith**, *Mensurationist*

Pulpwood constitutes more than half the industrial timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa, and Missouri).

Current detailed information about pulpwood production[1] is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, scientists need current pulpwood information to plan research projects.

Since 1979, we have included logs, bolts, and wood residue used in manufacturing particleboard, waferboard, and oriented strand board in this annual report. Together, these products are called flakeboards. Wood used at flakeboard plants is identical or nearly identical to wood used at pulpmills.

Because flakeboard plants primarily use aspen and wood residue, including them does not distort roundwood use trends for other species nor preclude comparing survey results with 1978 and previous years.

Pulpmills and flakeboard plants using North Central States timber in 1984 reported their pulpwood receipts[2] by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1983 or earlier years, and discusses trends in pulpwood production and use.

The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills). This is the 26th annual report of the pulpwood harvest in Lake States counties and the 25th annual report of the Central States harvest.

Several mills buy their pulpwood in green tons rather than in cords. Conversion factors used in the Lake States to convert green tons of pulpwood to standard cord equivalents are shown in the Appendix. Conversion factors used in the Central States are shown in footnote 1 of table 4.

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports and exports between Minnesota and Canada is not reported. *Thus, some Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated*.

LAKE STATES

Production

Pulpwood production rose from 6.54 million cords[3] in 1983 to a record 7.19 million cords in 1984, an increase of 10 percent (table 1). Of each 100 cords produced, 92 cords were roundwood (including chips from roundwood); the remainder was residue from wood-using plants.[4]

[1] *Pulpwood production, determined from mill receipts, is the annual volume of pulpwood cut in a specific county or region, plus the annual wood residue volume produced by sawmills, veneer mills, etc., in a specific State or region that was used for pulp, particleboard, waferboard, or oriented strand board.*

[2] *Pulpwood receipts are the volume of wood received by mills in a specific State or region, regardless of the geographic source.*

[3] *All references to cords are in standard cords. A standard cord is 128 cubic feet of wood, bark, and air space.*

[4] *Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using plants that is used for pulping and flakeboard. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.*

Table 1.--Production and imports of pulpwood, Lake States, 1984

(In standard cords, unpeeled)

Species and destination	Production by States[1/]				Imports			Total receipts
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.[2/]	Canada	Total imports	
Cedar								
Michigan	14,073	--	137	14,210	--	--	--	14,210
Total	14,073	--	137	14,210	--	--	--	14,210
Balsam fir								
Michigan	45,679	--	603	46,282	--	--	--	46,282
Minnesota	--	125,539	471	126,010	--	49	49	126,059
Wisconsin	24,875	3,041	79,614	107,530	--	--	--	107,530
Exported [3/]	7,877	17,168	--	25,045	--	--	--	--
Total	78,431	145,748	80,688	304,867	--	49	49	279,871
Hemlock								
Michigan	43,576	--	2,014	45,590	--	--	--	45,590
Wisconsin	3,293	--	23,119	26,412	--	--	--	26,412
Total	46,869	--	25,133	72,002	--	--	--	72,002
Jack pine								
Michigan	142,923	--	308	143,231	--	--	--	143,231
Minnesota	--	105,544	12,750	118,294	--	--	--	118,294
Wisconsin	46,381	11,950	216,660	274,991	2,949[4/]	--	2,949[4/]	277,940[5/]
Exported [3/]	--	15,089	--	15,089	--	--	--	--
Total	189,304	132,583	229,718	551,605	2,949[4/]	--	2,949[4/]	539,465[5/]
Red pine								
Michigan	68,488	--	439	68,927	--	--	--	68,927
Minnesota	--	38,275	8,114	46,389	--	--	--	46,389
Wisconsin	9,638	5,784	213,149	228,571	--	--	--	228,571
Total	78,126	44,059	221,702	343,887	--	--	--	343,887
White pine								
Michigan	21,321	--	207	21,528	--	--	--	21,528
Minnesota	--	11,969	2,361	14,330	--	--	--	14,330
Wisconsin	4,375	22	29,394	33,791	--	--	--	33,791
Total	25,696	11,991	31,962	69,649	--	--	--	69,649
Spruce								
Michigan	36,701	--	434	37,135	--	--	--	37,135
Minnesota	--	80,988	101	81,089	--	1,453	1,453	82,542
Wisconsin	25,833	27,818	41,222	94,873	--	--	--	94,873
Exported [3/]	14,205	8,770	--	22,975	--	--	--	--
Total	76,739	117,576	41,757	236,072	--	1,453	1,453	214,550
Tamarack								
Michigan	7,973	--	93	8,066	--	--	--	8,066
Minnesota	--	2,234	--	2,234	--	--	--	2,234
Wisconsin	1,685	9,296	3,762	14,743	--	--	--	14,743
Total	9,658	11,530	3,855	25,043	--	--	--	25,043
Ash								
Michigan	11,672	--	--	11,672	--	--	--	11,672
Wisconsin	5,948	370	47,846	54,164	--	--	--	54,164
Total	17,620	370	47,846	65,836	--	--	--	65,836
Aspen								
Michigan	821,611	--	11,739	833,350	--	--	--	833,350
Minnesota	--	1,380,746	39,982	1,420,728	--	--	--	1,420,728
Wisconsin	140,163	113,816	1,014,811	1,268,790	--	--	--	1,268,790
Exported [3/]	--	34,331	--	34,331	--	--	--	--
Total	961,774	1,528,893	1,066,532	3,557,199	--	--	--	3,522,868
Balsam poplar								
Michigan	36,864	--	--	36,864	--	--	--	36,864
Minnesota	--	60,577	1,479	62,056	--	--	--	62,056
Wisconsin	781	--	974	1,755	--	--	--	1,755
Exported [3/]	--	385	--	385	--	--	--	--
Total	37,645	60,962	2,453	101,060	--	--	--	100,675
Basswood								
Michigan	25,161	--	--	25,161	--	--	--	25,161
Wisconsin	1,020	--	13,624	14,644	--	--	--	14,644
Total	26,181	--	13,624	39,805	--	--	--	39,805
Beech								
Michigan	20,944	--	--	20,944	--	--	--	20,944
Wisconsin	2,475	--	2,014	4,489	--	--	--	4,489
Total	23,419	--	2,014	25,433	--	--	--	25,433
White birch								
Michigan	71,626	--	5,067	76,693	--	--	--	76,693
Wisconsin	7,722	3,488	181,582	192,792	--	--	--	192,792
Total	79,348	3,488	186,649	269,485	--	--	--	269,485

(Table 1 continued on next page)

(Table 1 continued)

Species and destination	Production by States 1/				Imports			Total receipts
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S. 2/	Canada	Total imports	
Yellow birch								
Michigan	25,660	--	--	25,660	--	--	--	25,660
Wisconsin	14,483	--	21,154	35,637	--	--	--	35,637
Total	40,143	--	21,154	61,297	--	--	--	61,297
Cottonwood								
Michigan	1,107	--	--	1,107	--	--	--	1,107
Total	1,107	--	--	1,107	--	--	--	1,107
Elm								
Michigan	20,256	--	--	20,256	--	--	--	20,256
Wisconsin	30,662	215	53,630	84,507	--	--	--	84,507
Total	50,918	215	53,630	104,763	--	--	--	104,763
Hickory								
Michigan	716	--	--	716	--	--	--	716
Wisconsin	--	--	99	99	--	--	--	99
Total	716	--	99	815	--	--	--	815
Hard maple								
Michigan	96,957	--	--	96,957	--	--	--	96,957
Wisconsin	47,796	390	151,412	199,598	--	--	--	199,598
Total	144,753	390	151,412	296,555	--	--	--	296,555
Soft maple								
Michigan	119,488	--	--	119,488	--	--	--	119,488
Wisconsin	18,683	143	109,059	127,885	--	--	--	127,885
Total	138,171	143	109,059	247,373	--	--	--	247,373
Red oak								
Michigan	124,969	--	--	124,969	--	--	--	124,969
Wisconsin	1,140	--	40,306	41,446	--	--	--	41,446
Total	126,109	--	40,306	166,415	--	--	--	166,415
White oak								
Michigan	29,625	--	--	29,625	--	--	--	29,625
Wisconsin	87	--	11,826	11,913	--	--	--	11,913
Total	29,712	--	11,826	41,538	--	--	--	41,538
Other hardwoods								
Michigan	6,191	--	--	6,191	--	--	--	6,191
Wisconsin	4,951	--	6,795	11,746	--	--	--	11,746
Total	11,142	--	6,795	17,937	--	--	--	17,937
Total roundwood								
Michigan	1,793,581	--	21,041	1,814,622	--	--	--	1,814,622
Minnesota	--	1,805,872	65,258	1,871,130	--	1,502	1,502	1,872,632
Wisconsin	391,991	176,333	2,262,052	2,830,376	2,949	--	2,949	2,833,325
Exported 3/	22,082	75,743	--	97,825	--	--	--	--
Total	2,207,654	2,057,948	2,348,351	6,613,953	2,949	1,502	4,451	6,520,579
Residue, softwoods								
Michigan	10,395	--	137	10,532	--	3,264	3,264	13,796
Minnesota	--	38,284	--	38,284	--	1,379	1,379	39,663
Wisconsin	12,480	7,086	47,221	66,787	129,961	6,909	136,870	203,657
Exported 3/	--	1,498	--	1,498	--	--	--	--
Total	22,875	46,868	47,358	117,101	129,961	11,552	141,513	257,116
Residue, hardwoods								
Michigan	129,639	--	24,003	153,642	17,493	28	17,521	171,163
Minnesota	--	44,242	--	44,242	--	4,669	4,669	48,911
Wisconsin	37,625	68	224,479	262,172	1,466	330	1,796	263,968
Exported 3/	--	1,154	--	1,154	--	--	--	--
Total	167,264	45,464	248,482	461,210	18,959	5,027	23,986	484,042
All wood material								
Michigan	1,933,615	--	45,181	1,978,796	17,493	3,292	20,785	1,999,581
Minnesota	--	1,888,398	65,258	1,953,656	--	7,550	7,550	1,961,206
Wisconsin	442,096	183,487	2,533,752	3,159,335	134,376	7,239	141,615	3,300,950
Exported 3/	22,082	78,395	--	100,477	--	--	--	--
Total	2,397,793	2,150,280	2,644,191	7,192,264	151,869	18,081	169,950	7,261,737

1/ Vertical columns of figures under the box heading "Production by States", present the amount of pulpwood cut in each State.

2/ Mostly western States.

3/ Pulpwood shipped to mills outside of region.

4/ Ponderosa pine.

5/ Includes ponderosa pine from other U.S.

Principal species cut were aspen (3,557,000 cords), jack pine (552,000 cords), red pine (344,000 cords), balsam fir (305,000 cords), and hard maple (297,000 cords). Other important species, each contributing more than 200,000 cords, were white birch, soft maple, and spruce.

Hardwood pulpwood production eclipsed the previous high in 1983 by 477,000 cords. Hardwood roundwood output rose 418,000 cords above the 1983 round hardwood record, while output from hardwood mill residue surpassed the 1981 record for hardwood residue by 4,000 cords. Harvests of aspen, hard maple, and soft maple climbed to record levels. Aspen exceeded the 1983 peak by 251,000 cords, hard maple outstripped the 1980 high by 19,000 cords, and soft maple beat the 1979 high by 17,000 cords.

Softwood production rose 173,000 cords from 1983, although production from mill residue dropped 7,000 cords. Output increased in each softwood species except for hemlock and two minor components (tamarack and cedar). Significant gains were in jack pine (102,000 cords), red pine (42,000 cords), and spruce (36,000 cords). White pine reached a record harvest for the fifth consecutive year.

Lake States loggers produced 548,000 cords of whole-tree chips[5] (WTC), down 9 percent from 1983. Eight out of every 100 cords of Lake States pulpwood output were WTC. Seventeen out of 100 cords cut in Michigan were WTC. WTC production was off in each State; production in Wisconsin was nominal. Production of WTC by species group and State was:

State	Softwoods	Aspen	Other hardwoods
	(Thousand cords)		
Michigan	16.3	247.5	144.2
Minnesota	--	111.7	6.9
Wisconsin	--	21.2	--

Michigan.—Michigan producers supplied 2.40 million cords of pulpwood, up 11 percent from the previous peak in 1983. Production of aspen, hard maple, and red oak reached new highs. Marquette, Iron, Delta, Menominee, and Schoolcraft Counties were the top producers.

Minnesota.—For the first time, Minnesota production exceeded 2 million cords. Pulpwood production rose to 2.15 million cords, a gain of 13 percent from 1983. Aspen output, rising above 1.5 million cords for the first time, accounted for 74 percent of all roundwood cut. Demand for softwoods except tamarack strengthened. Balsam fir output was above any year since 1957. Seven counties—St. Louis, Itasca, Koochiching, Beltrami, Cass, Hubbard, and Lake—furnished four-fifths of the roundwood.

Wisconsin.—Wisconsin's output of 2.64 million cords was 7 percent above the record high in 1983. Aspen, birch, soft maple, and red pine production reached peak levels. On the other hand, hemlock production fell to the lowest level in at least 39 years. Bayfield, Marinette, Oneida, Forest, Sawyer, Langlade, Douglas, Price, and Vilas Counties each produced more than 100,000 cords.

In this report, we show the distribution of the harvest in two ways: first, the amount of pulpwood cut relative to the growing-stock volume in each of five major pulpwood species (fig. 1); and, second, the amount of pulpwood cut relative to commercial forest area (fig. 2). For the major supply areas, pulpwood harvesting was most intensive for jack pine in the Northeastern Wisconsin and Western Upper Peninsula of Michigan Survey Units; for red pine in the Central Unit of Wisconsin; for spruce and balsam fir in Northeastern Wisconsin; and for aspen in Northeastern Wisconsin and the Northern Pine Unit of Minnesota.

More than 200 cords of pulpwood were harvested per thousand acres of stocked commercial forest land in the following counties:

Michigan	Minnesota	Wisconsin
Iron	Clearwater	Bayfield
Dickinson	Beltrami	Burnett
Menominee	Hubbard	Sawyer
Delta	Koochiching	Price
Montmorency	Itasca	Vilas
Alcona		Oneida
Missaukee		Forest
Manistee		Florence
Mason		Marinette
Lake		Lincoln
Osceola		Langlade
Mecosta		Menominee

Receipts

Thirty-eight pulp and nine flakeboard mills received 7.26 million cords of pulpwood in 1984, a gain of more than one-half million cords from 1983. Forty-one of 47 operating mills used aspen and 17 used maple (table 2).

All three States supply many mills with pulpwood, including mills outside the Lake States area. Minnesota and Wisconsin each supplied 27 mills and Michigan supplied 25 mills.

[5]*Pulpwood produced from chipping entire trees (all portions of trees above ground, except the stumps).*

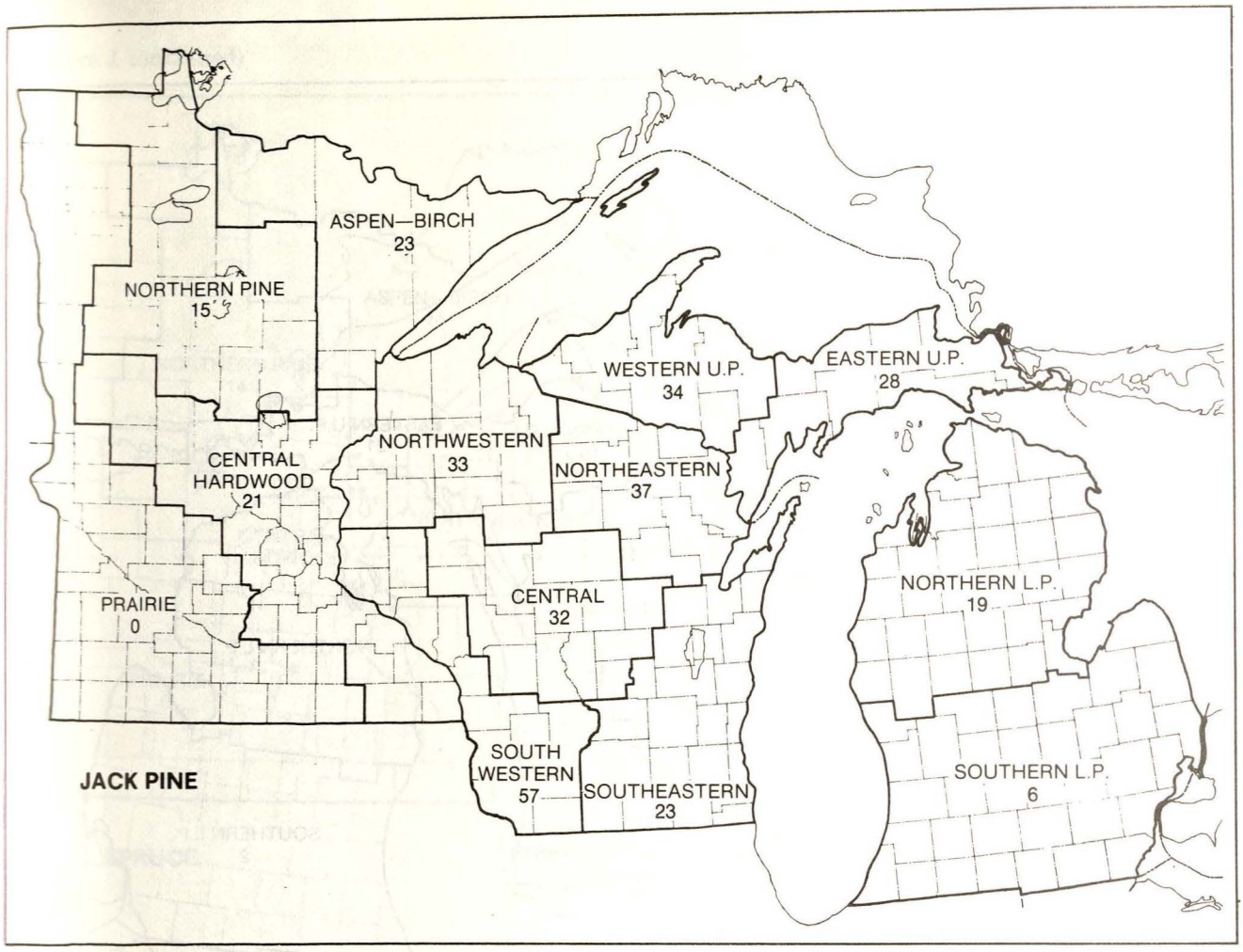


Figure 1.—*Cords of roundwood pulpwood (including chips from roundwood) harvested per 1,000 cords of merchantable volume in five principal pulpwood species by Forest Survey Unit, 1984. Merchantable volume was determined during the last forest inventory in each State.*

Softwood residue imports from Canada plunged for the fourth consecutive year and were only 12,000 cords in 1984, the lowest level since 1972. Shipments of softwood residue from other areas of the U.S. to the Lake States declined slightly, leading to the second lowest demand for these residues since 1967; South Dakota and Wyoming were the major suppliers.

Michigan.—All but 3 percent of the 2.00 million cords of pulpwood received in Michigan came from within the State. Hardwood mill residue was the principal import. Receipts were strong for aspen, jack pine, red oak, and hard maple.

Wisconsin.—Twenty-five Wisconsin mills procured 3.30 million cords of pulpwood and 23 percent was from out-of-State. Michigan supplied 442,000 cords, Minnesota 183,000 cords, other (primarily western) States 134,000 cords, and Canada 7,000 cords. Leading imports were aspen, softwood mill residue, jack pine, and spruce. Aspen, white birch, and soft maple were in record demand.

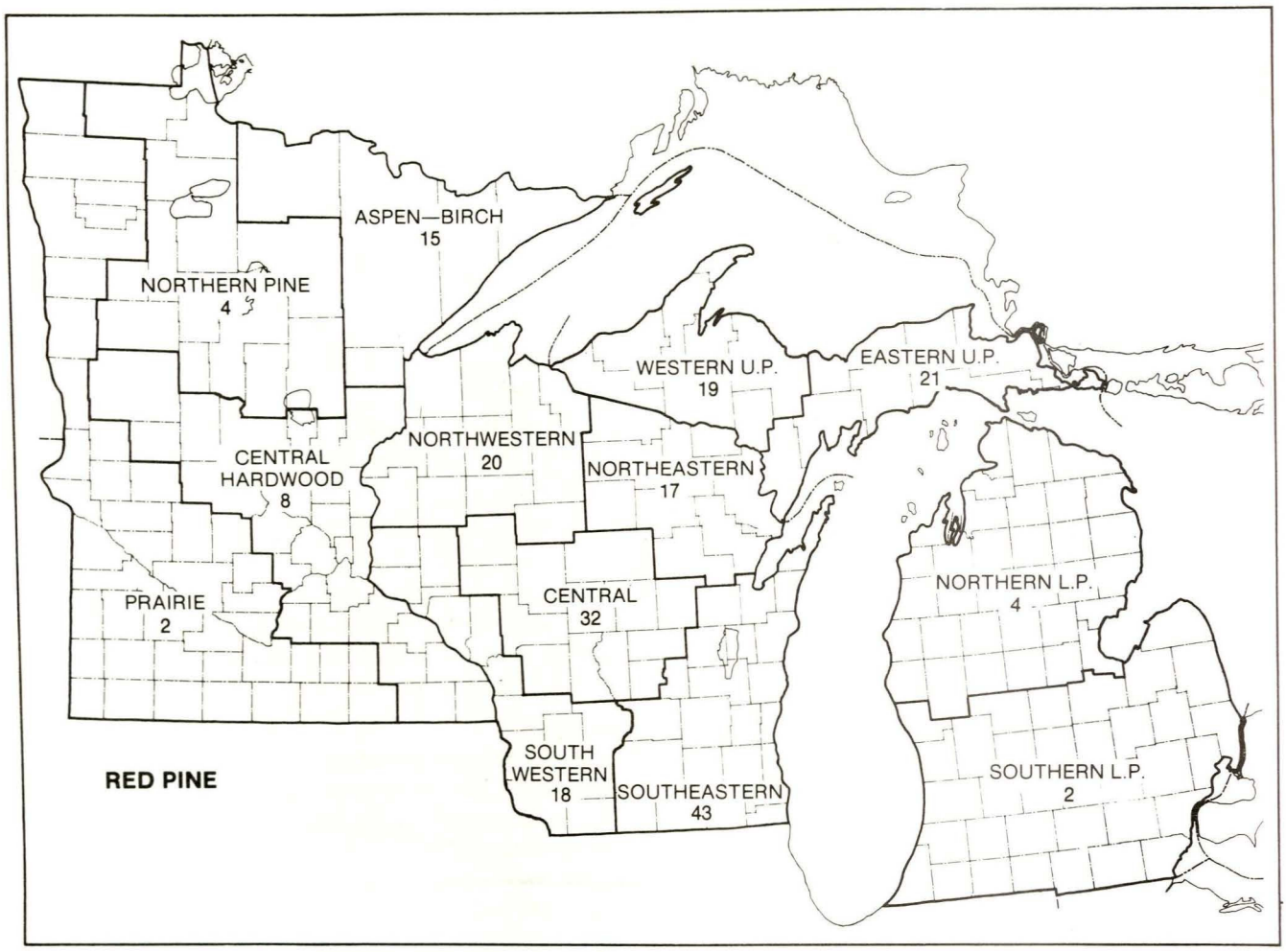
Minnesota.—Minnesota pulpwood receipts are not fully reported (see earlier explanation).

Industry Trends and Analysis

Pulpmills

Average daily pulp production rose 1 percent to 10,885 tons per day in 1984 (table 3). Expanded production was in kraft and groundwood pulp. A large new Michigan mill will probably begin operating in late 1985. Duluth is being considered as a potential pulpmill site by at least two different groups.

(Figure 1 continued)



Lake States pulpwood production for pulpmills in 1982, 1983, and 1984 was:

Species	Production		
	1982	1983	1984
	(Thousand cords)		
Roundwood			
Aspen	1,828	2,133	2,273
Other species	2,621	2,618	2,899
Residue	384	445	493
Total	4,833	5,196	5,665

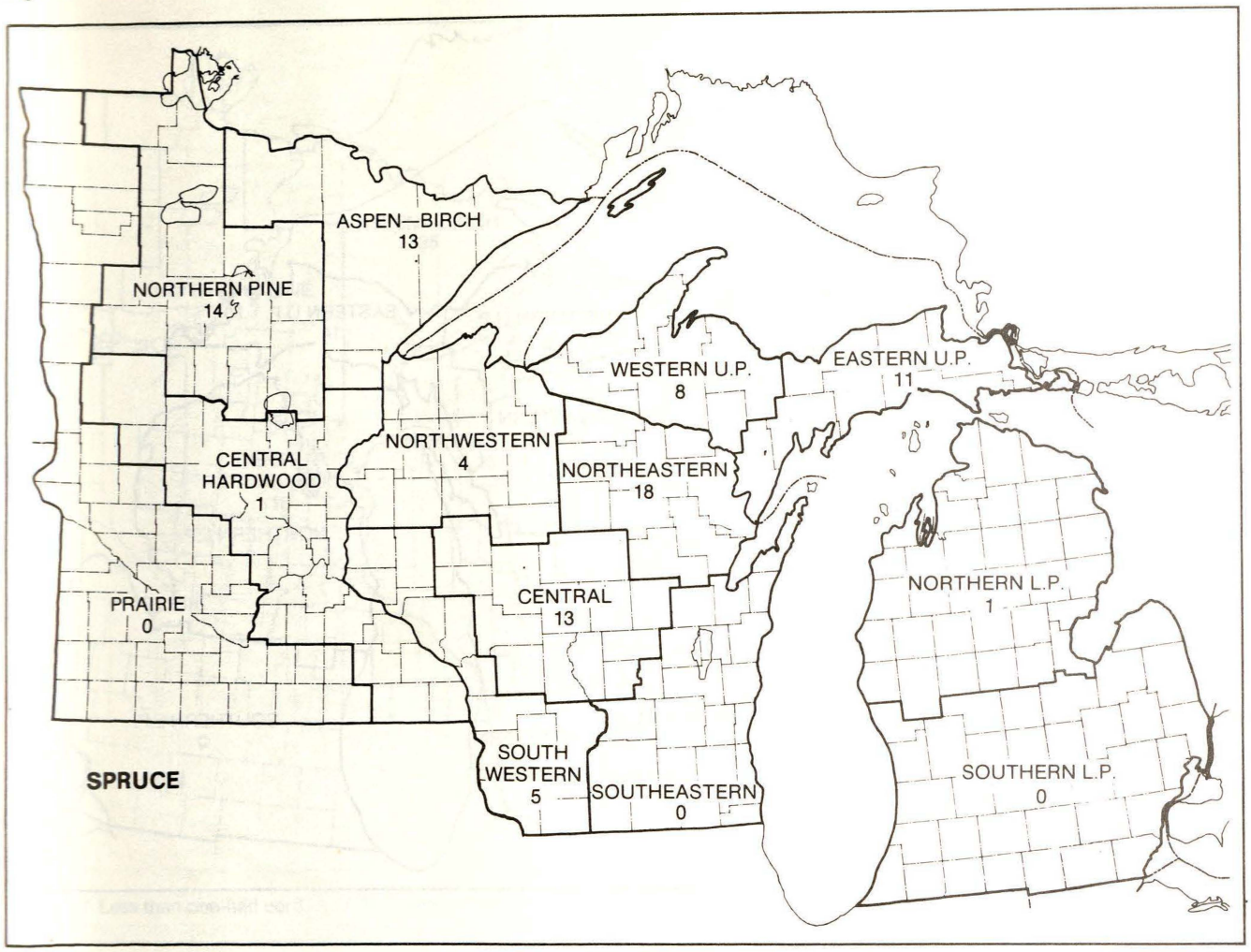
The 9-percent rise in pulpwood production for pulpmills in the Lake States during 1984 compares favorably with the 5.6 percent rise in U.S. paper and paperboard production in 1984.

Flakeboard mills

No new mills began operating in 1984. Annual production capacity of the Lake States flakeboard plants remained at 860 million square feet as shown below:

Company	Location	Capacity (Million square feet 3/4-inch basis)
Champion International Corp.	Gaylord, MI	175
Weyerhaeuser Co.	Grayling, MI	105
Blandin Wood Products Co.	Grand Rapids, MN	135
Northwood Panelboard Co.	Bemidji, MN	80
Potlatch Corp.	Bemidji, MN	75
Potlatch Corp.	Cook, MN	80
Louisiana-Pacific	Hayward, WI	130
Rodman Industries	Marinette, WI	15
Weyerhaeuser Co.	Marshfield, WI	65
		860

(Figure 1 continued)



Lake States pulpwood production for flakeboard plants in 1982, 1983, and 1984 was:

Species	Production		
	1982	1983	1984
	(Thousand cords)		
Roundwood			
Aspen	554	1,173	1,284
Other species	61	93	158
Residue	73	80	85
Total	688	1,346	1,527

Pulpwood production in the Lake States for flakeboard climbed 13 percent from 1983, primarily because housing starts in the U.S. were up 2.4 percent from 1983 to 1.745 million units and the newest mills could operate closer to capacity. During 1984, panel use in housing increased 6 percent.

A new Minnesota waferboard plant and a new Michigan medium density fiberboard plant are scheduled to begin operating in 1985.

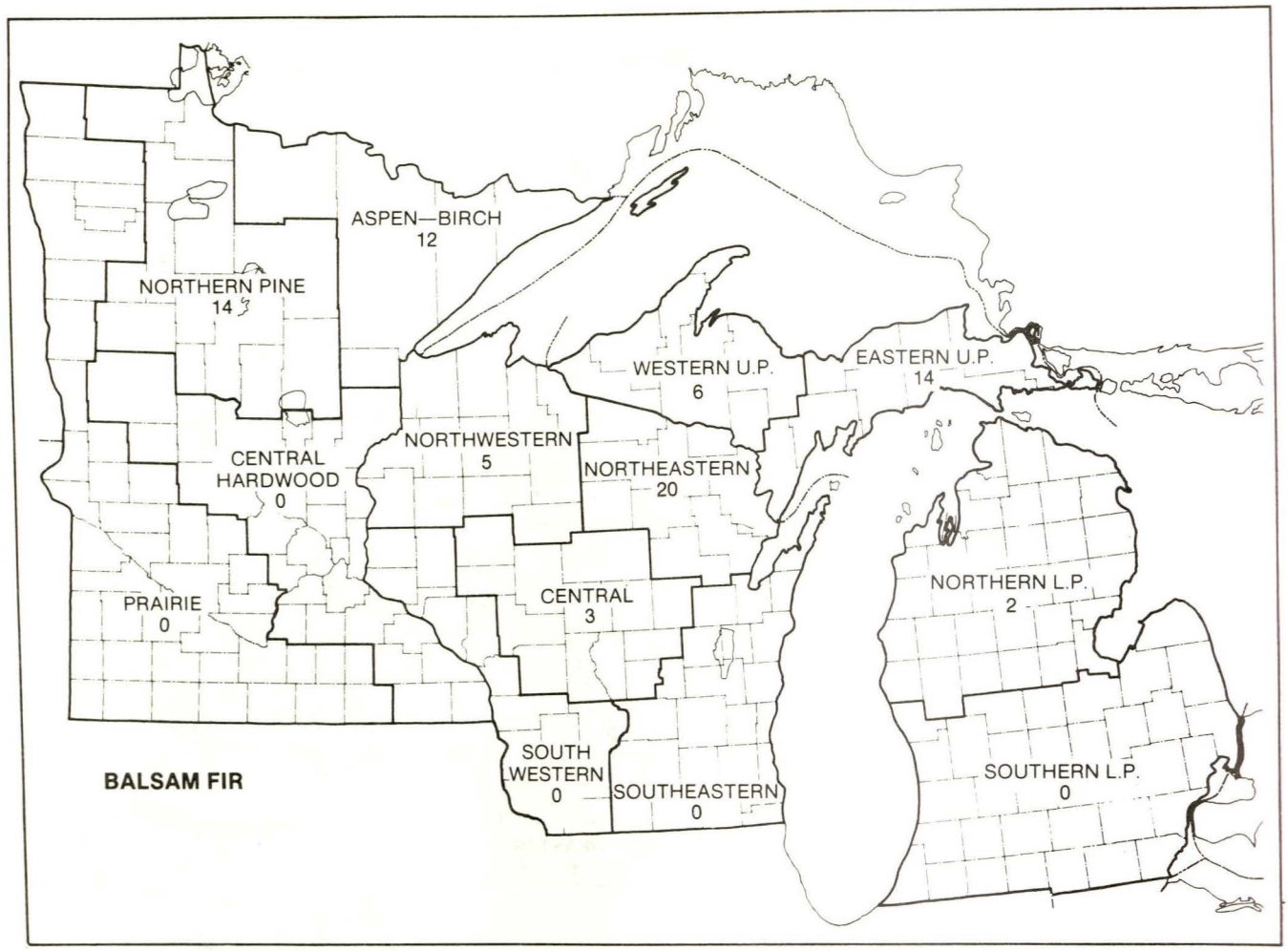
With moderately strong markets for paper and paperboard, good demand for housing in 1985, and new Lake States pulp and flakeboard mills starting up, Lake States pulpwood output is likely to set another record in 1985, although the percentage gain is likely to be smaller than in 1984.

CENTRAL STATES

Production

Pulpwood production dropped 12 percent to 395,000 cords, (table 4), the second lowest output in 15 years. Approximately 7 out of 10 cords were residue from wood-using mills. Demand fell in each roundwood species group and in each mill residue category. After five consecutive annual increases, exports from the Central States (mainly hardwood residue) declined 14 percent. Kentucky, Michigan,

(Figure 1 continued)



Ohio, Wisconsin, and Oklahoma mills received two-thirds of the pulpwood produced.

Indiana, accounting for slightly more than one-half the output, produced 9 percent less pulpwood than in 1983. Output fell in Illinois and Missouri but increased in Iowa.

Loggers harvested pulpwood in 20 Illinois counties, 17 Indiana counties, 16 Missouri counties, and 12 Iowa counties (fig. 3). Producing areas contracted in southern Illinois and southeastern Missouri and expanded in east central Iowa.

Receipts

Three Central States pulpmills received 135,000 cords in 1984, down 9 percent from 1983. Both receipts of residue from wood-using mills and roundwood declined. Imports were only 3,000 cords.

Industry Trends and Analysis

Average daily pulp production remained at 470 tons (table 5). No changes in average daily production are anticipated.

Although exports to other States declined for the first time in 6 years, exports are expected to remain strong and mills in adjacent States are likely to provide markets for at least 2 out of 3 cords of Central States pulpwood.

If no more Central States mills close, pulpwood production will probably remain in the range of 370,000 to 450,000 cords during the next 3 years.

(Figure 1 continued)

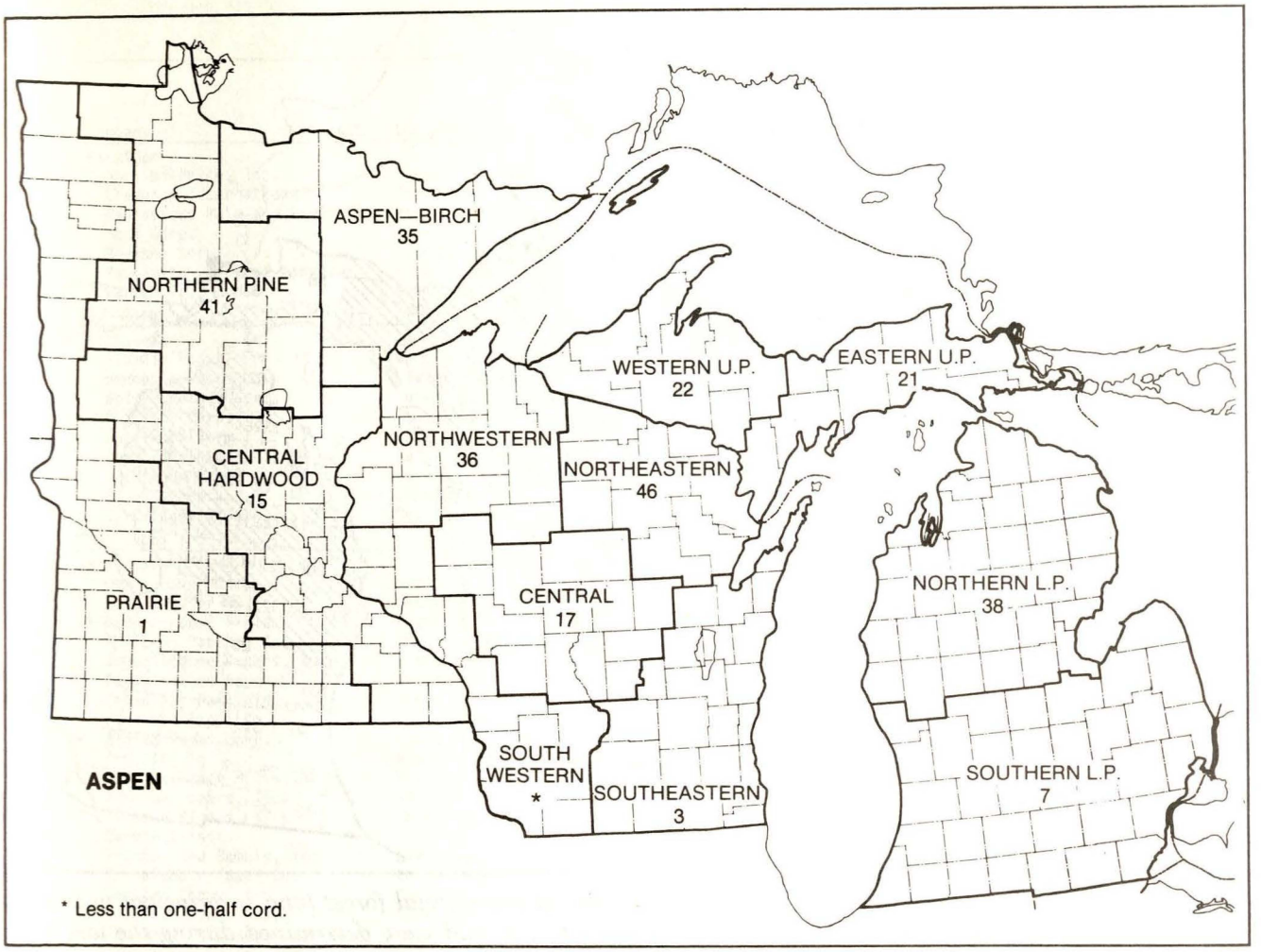


Table 2.--Numbers of industrial plants in the Lake States using a particular species or residue for pulping and flakeboard in 1984

Species and kind of material	Total Lake States	State		
		Michigan	Minnesota	Wisconsin
Aspen	41	8	13	20
Balsam fir	15	3	4	8
Birch	16	5	--	11
Hemlock	5	1	--	4
Pine	11	5	2	4
Spruce	16	3	5	8
Tamarack	7	1	2	4
Maple	17	7	--	10
Oak	14	7	--	7
Other hardwoods	19	7	4	8
Softwood residue	13	3	2	8
Hardwood residue	18	7	2	9
Total plants[1/]	47	9	13	25

[1/] Some plants use more than one species, so numbers in columns are not additive.

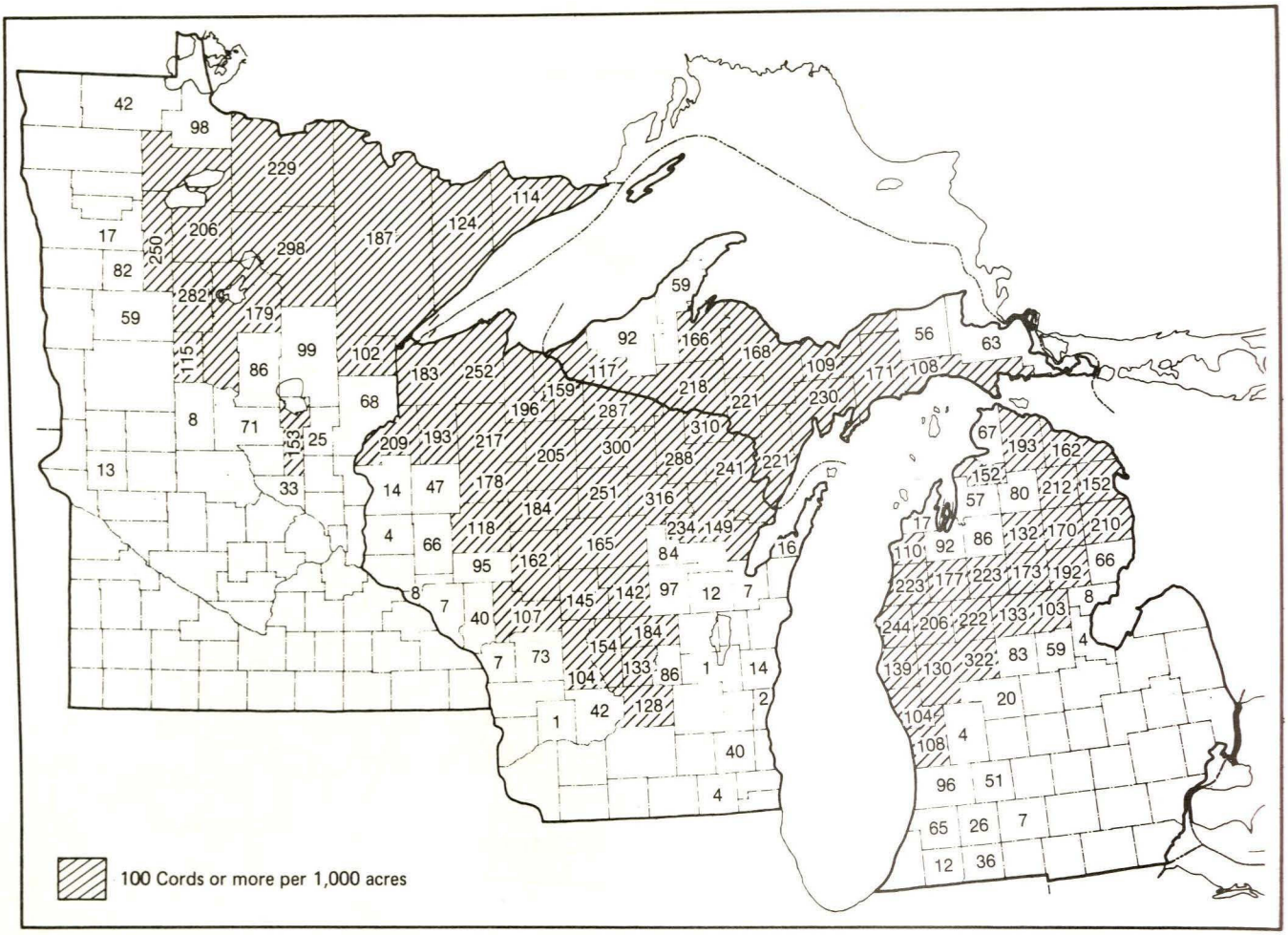


Figure 2.—*Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1984. Acres of stocked commercial forest land were determined during the last forest inventory in each State.*

Table 3.--Average daily production of active woodpulp mills in the Lake States by mill, location, and type of pulp produced, 1984

(In tons per 24 hours)[1/]

Company	Location	All types	Type of pulp			
			Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
Michigan						
Abitibi-Price, Inc.	Alpena	430	--	--	430	--
Champion International	Ontonagon	440	--	--	--	440
Manistique Pulp and Paper Co.	Manistique	90	--	--	90	--
Mead Corp.	Escanaba	800	--	600	200	--
Menasha Corp.	Otsego	225	--	--	--	225
Packaging Corp. of America	Filer City	600	--	--	--	600
Warren Co., S.D.	Muskegon	250	--	250	--	--
Total	7 mills	2,835	--	850	720	1,265
Minnesota						
Blandin Paper Co.	Grand Rapids	300	--	--	300	--
Hennepin Paper Co.	Little Falls	75	--	--	75	--
Boise Cascade Corp.	International Falls	920	--	380	540	--
Potlatch Corp.	Cloquet	475	--	475	--	--
Superwood Corp.	Bemidji	100	--	--	100	--
Champion International	Sartell	385	--	--	385	--
Superwood Corp.	Duluth	350	--	--	350	--
Conwed Corp.	Cloquet	50	--	--	50	--
Certain-Teed Corp.	Shakopee	80	--	--	80	--
Total	9 mills	2,735	--	855	1,880	--
Wisconsin						
James River Corp.	Green Bay	150	150	--	--	--
Weyerhaeuser Co.	Rothschild	200	200	--	--	--
Badger Paper Mills	Peshtigo	100	100	--	--	--
Appleton Papers, Inc.	Combined Locks	200	--	--	200	--
Consolidated Papers, Inc.	Stevens Point	310	--	--	310	--
Consolidated Papers, Inc.	Wisconsin Rapids	815	--	515	300	--
Green Bay Packaging, Inc.	Green Bay	200	--	--	--	200
Flambeau Paper Co.	Park Falls	110	110	--	--	--
Midtec Paper Corp.	Kimberly	180	--	--	180	--
Pentair, Inc.	Niagara	210	--	--	210	--
Mosinee Paper Mills Co.	Mosinee	220	--	220	--	--
Nekoosa Papers, Inc.	Nekoosa	335	--	335	--	--
Nekoosa Papers, INC.	Port Edwards	235	235	--	--	--
Owens-Illinois	Tomahawk	1,000	--	--	--	1,000
Procter and Gamble, Inc.	Green Bay	2/	2/	2/	2/	2/
Rhinelander Paper Co.	Rhinelander	75	75	--	--	--
Genstar Corp.	Cornell	100	--	--	100	--
Superior Fiber Products Co.	Superior	140	--	--	140	--
Thilmany Pulp and Paper Co.	Kaukauna	400	--	400	--	--
Tomahawk Pulp Co., Inc.	Tomahawk	50	--	--	50	--
Wausau Paper Mills Co.	Brokaw	185	185	--	--	--
Superwood Corp.	Phillips	100	--	--	100	--
Total	22 mills	5,315	1,055	1,470	1,590	1,200
All States	38 mills	10,885	1,055	3,175	4,190	2,465

[1/] Lockwood's Directory of the Paper and Allied Industries -- 1985.

[2/] Capacity not available.

Table 4.--Production and imports of pulpwood, Central States, 1984

(In standard cords, unpeeled)[1/]

Species and destination	Production by States[1/]					Imports			Total receipts
	Illinois	Indiana	Iowa	Missouri	Regional total	Lake states	Other U.S.	Total imports	
Softwoods									
Exported [4/]	16,871	--	--	1,164	18,035	--	--	--	--
Total	16,871	--	--	1,164	18,035	--	--	--	--
Soft hardwoods									
Central States [3/]	5,514	13,207	7,748	7,365	33,834	--	1,402	1,402	35,236
Exported [4/]	5,726	1,705	--	1,741	9,172	--	--	--	--
Total	11,240	14,912	7,748	9,106	43,006	--	1,402	1,402	35,236
Hard hardwoods									
Central States [3/]	3,566	12,976	2,389	9,304	28,235	--	1,377	1,377	29,612
Exported [4/]	9,196	7,444	--	8,224	24,864	--	--	--	--
Total	12,762	20,420	2,389	17,528	53,099	--	1,377	1,377	29,612
Total roundwood									
Central States [3/]	9,080	26,183	10,137	16,669	62,069	--	2,779	2,779	64,848
Exported [4/]	31,793	9,149	--	11,129	52,071	--	--	--	--
Total	40,873	35,332	10,137	27,798	114,140	--	2,779	2,779	64,848
Residue, softwood									
Exported [4/]	1,803	--	5,873	1,892	9,568	--	--	--	--
Total	1,803	--	5,873	1,892	9,568	--	--	--	--
Residue, hardwoods									
Central States [3/]	20,380	30,115	3,994	15,507	69,996	--	--	--	69,996
Exported [4/]	19,272	140,453	--	41,118	200,843	--	--	--	--
Total	39,652	170,568	3,994	56,625	270,839	--	--	--	69,996
All wood material									
Central States [3/]	29,460	56,298	14,131	32,176	132,065	--	2,779	2,779	134,844
Exported [4/]	52,868	149,602	5,873	54,139	262,482	--	--	--	--
Total	82,328	205,900	20,004	86,315	394,547	--	2,779	2,779	134,844

[1/] Factors used in converting to standard green cords (128 cu.ft. including bark and air space) were:
4,266 pounds of softwood roundwood;
4,795 pounds of soft hardwood roundwood;
5,394 pounds of hard hardwood roundwood;
4,100 pounds of softwood chips (green mill residue);
4,400 Pounds of hardwood chips (green mill residue);
2,500 Pounds of chips (all species, dry mill residue).

[2/] Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

[3/] Combined to prevent disclosure of individual mill receipts.

[4/] Pulpwood shipped to mills outside the region.

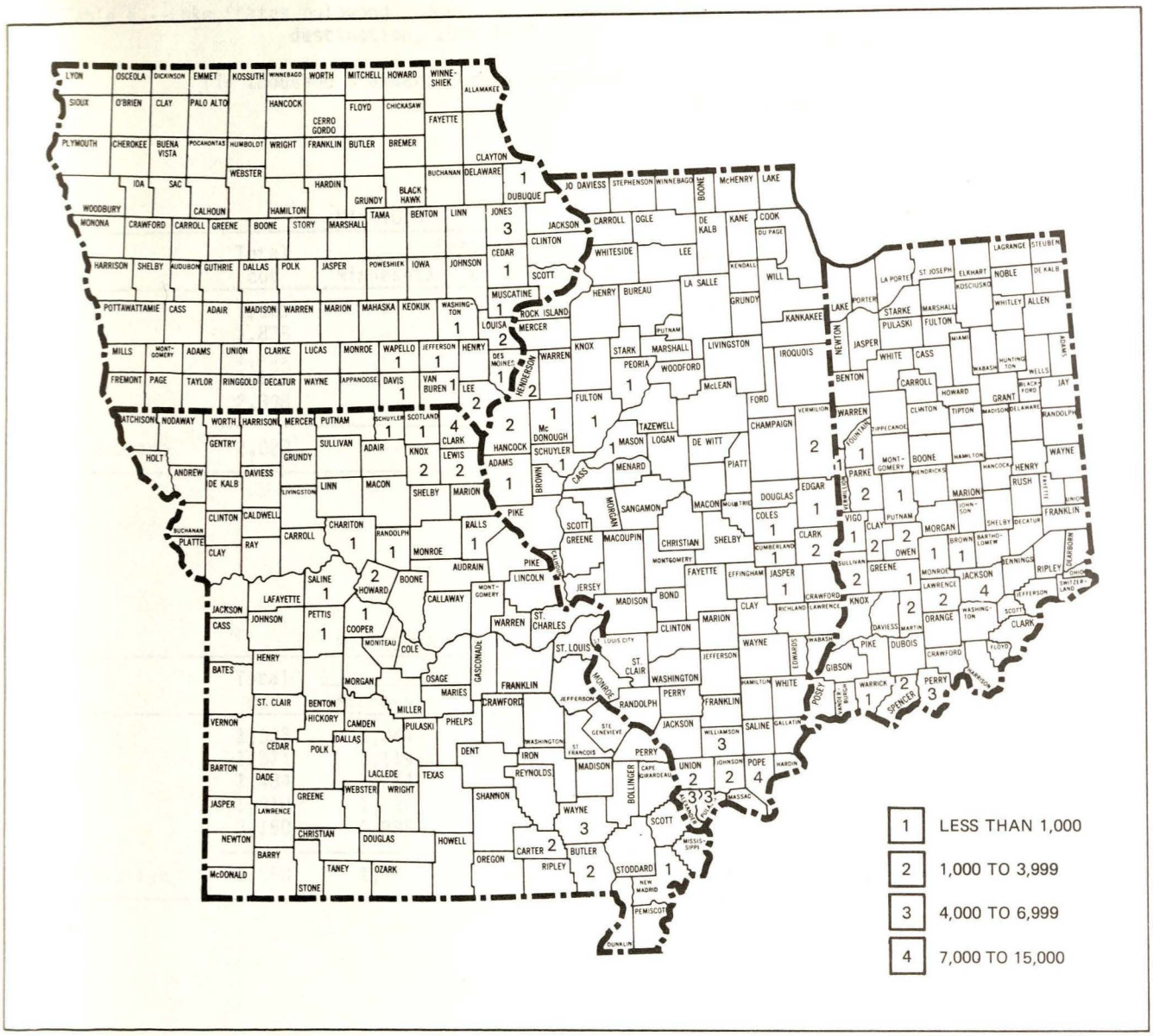


Figure 3.—*Production of pulpwood from roundwood (including chips from roundwood) in the Central States by counties, in standard cords, 1984.*

Table 5.--Average daily production of active woodpulp mills in the Central States by mill, location, and type of pulp produced, 1984

(In tons per 24 hours)[1/]

Company	Location	All types	Type of pulp			
			Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
Illinois						
(No current operations)						
Total	0 mills	--	--	--	--	--
Indiana						
Weston Paper and Mfg. Co.	Terre Haute	270	--	--	--	270
Total	1 mill	270	--	--	--	270
Iowa						
Consolidated Packaging Corp.	Fort Madison	140	--	--	--	140
Total	1 mill	140	--	--	--	140
Missouri						
Huebert Fibreboard, Inc.	Booneville	60	--	--	60	--
Total	1 mill	60	--	--	60	--
All states	3 mills	470	--	--	60	410

APPENDIX

Conversion Factors Used in Lake States

Standard cords of green roundwood per green ton:

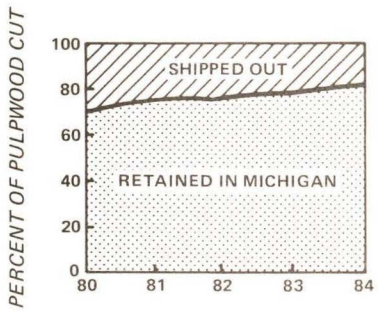
Species	Factor
Cedar	0.6329
Balsam fir	.4688
Hemlock	.4150
Jack pine	.4688
Red pine	.4688
White pine	.4777
Spruce	.5014
Tamarack	.4291
Ash	.4330
Aspen	.4291
Balsam poplar	.4083
Basswood	.5167
Beech	.3956
White birch	.4018
Yellow birch	.3723
Cottonwood	.4291
Elm	.4018
Hickory	.3701
Hard maple	.3617
Soft maple	.4083
Red oak	.3444
White oak	.3723
Other species	.4688

Table 6.--Lake States pulpwood production by State of origin and destination, 1980-1984

(In thousand standard cords, unpeeled)

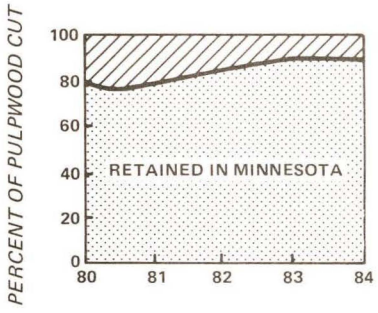
MICHIGAN

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1980	1,969	--	490	1,443	36
1981	1,838	--	419	1,402	17
1982	1,751	--	396	1,340	15
1983	2,157	--	391	1,747	19
1984	2,398	--	442	1,934	22
5-year average	2,023	--	428	1,573	22



MINNESOTA

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1980	1,333	1,044	216	--	73
1981	1,371	1,119	177	--	75
1982	1,484	1,264	179	--	41
1983	1,910	1,720	155	--	35
1984	2,150	1,888	184	--	78
5-year average	1,650	1,407	182	--	61



WISCONSIN

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1980	2,362	18	2,297	35	12
1981	2,389	34	2,320	26	9
1982	2,286	27	2,231	28	--
1983	2,475	53	2,399	23	--
1984	2,644	65	2,534	45	--
5-year average	2,431	39	2,356	32	4

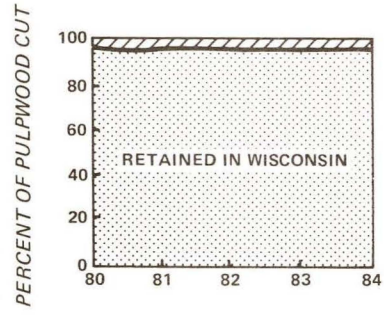


Table 7.--Lake States pulpwood production by Forest Survey Unit and destination by State, 1984

(In hundred standard cords, roughwood basis)

Unit	Total cut	Destination of pulpwood			
		Michigan	Minnesota	Wisconsin	Other
MICHIGAN					
Roundwood					
E. Upper Peninsula	5,103	4,004	--	922	177
W. Upper Peninsula	6,346	3,425	--	2,915	6
N. Lower Peninsula	10,043	9,922	--	83	38
S. Lower Peninsula	585	585	--	--	--
Total	22,077	17,936	--	3,920	221
Residue	1,901	1,400	--	501	--
Total pulpwood	23,978	19,336	--	4,421	221
MINNESOTA					
Roundwood					
Aspen-Birch	9,397	--	7,790	853	754
Northern Pine	10,538	--	9,717	817	4
Central Hardwood	633	--	541	92	--
Prairie	11	--	10	1	--
Total	20,579	--	18,058	1,763	758
Residue	924	--	825	72	27
Total pulpwood	21,503	--	18,883	1,835	785
WISCONSIN					
Roundwood					
Northeastern	9,630	44	--	9,586	--
Northwestern	9,626	167	653	8,806	--
Central	3,776	--	--	3,776	--
Southwestern	276	--	--	276	--
Southeastern	177	--	--	177	--
Total	23,485	211	653	22,621	--
Residue	2,958	241	--	2,717	--
Total pulpwood	26,443	452	653	25,338	--

Table 8.--Lake States annual pulpwood production from roundwood by species, State, and Forest Survey Unit, 1980-1984

(In thousand standard cords, unpeeled)

MICHIGAN

Unit	All species[1]					Pine					Spruce				
	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984
Eastern Upper Peninsula	469	414	425	500	510	70	56	77	95	113	34	24	33	45	43
Western Upper Peninsula	566	517	554	619	635	53	45	52	52	73	23	19	34	31	33
Northern Lower Peninsula	745	693	585	802	1,004	124	118	118	102	105	1	2	1	1	1
Southern Lower Peninsula	35	48	66	63	59	21	18	15	8	2	--	--	--	--	--
Total	1,815	1,672	1,630	1,984	2,208	268	237	262	257	293	58	45	68	77	77
MINNESOTA															
Aspen-Birch	642	635	618	803	940	66	71	92	68	100	127	93	98	66	90
Northern Pine	552	597	708	942	1,054	76	70	80	67	85	43	34	36	29	27
Central Hardwood	40	36	65	70	63	9	6	7	5	4	(2/)	(2/)	--	(2/)	(2/)
Prairie	3	2	(2/)	1	1	--	(2/)	(2/)	--	(2/)	(2/)	(2/)	--	--	--
Total	1,237	1,270	1,391	1,816	2,058	151	147	179	140	189	170	127	134	95	117
WISCONSIN															
Northeastern	947	880	875	951	963	95	111	156	114	111	27	22	23	21	33
Northwestern	752	870	832	925	962	113	131	141	125	150	5	5	5	7	8
Central	335	315	303	300	377	149	150	166	137	182	1	(2/)	(2/)	(2/)	1
Southwestern	27	24	23	26	28	22	20	23	25	27	(2/)	(2/)	(2/)	(2/)	(2/)
Southeastern	12	9	10	14	18	8	7	8	11	13	(2/)	--	--	(2/)	--
Total	2,073	2,098	2,043	2,216	2,348	387	419	494	412	483	33	27	28	28	42
Total Lake States	5,125	5,040	5,064	6,016	6,614	806	803	935	809	965	261	199	230	200	236

(Table 8 continued on next page)

1/ Includes a small quantity of cedar not shown elsewhere in the table.

2/ Less than 500 cords.

(Table 8 continued)

MICHIGAN

Unit	Balsam fir					Hemlock					Tamarack				
	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984
Eastern Upper Peninsula	57	57	56	59	44	32	23	30	27	25	3	3	3	4	5
Western Upper Peninsula	46	42	45	36	31	26	16	26	21	22	3	3	7	3	5
Northern Lower Peninsula	6	5	4	6	3	(2/)	(2/)	(2/)	--	--	--	--	--	--	--
Southern Lower Peninsula	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	109	104	105	101	78	58	39	56	48	47	6	6	10	7	10

MINNESOTA

Aspen-Birch	73	69	68	51	88	--	--	--	--	--	22	11	24	12	6
Northern Pine	38	31	38	39	58	--	--	--	--	--	18	18	20	14	5
Central Hardwood	--	--	(2/)	--	--	--	--	--	--	--	(2/)	(2/)	(2/)	(2/)	(2/)
Prairie	--	--	--	--	--	--	--	--	--	--	3	1	(2/)	(2/)	(2/)
Total	111	100	106	90	146	--	--	--	--	--	43	30	44	26	11

WISCONSIN

Northeastern	66	79	70	61	60	26	24	29	29	21	2	1	2	2	2
Northwestern	35	25	32	22	20	6	4	4	9	3	1	3	4	3	2
Central	1	1	1	2	1	2	1	(2/)	2	1	(2/)	1	1	1	(2/)
Southwestern	--	(2/)	(2/)	--	--	--	--	--	--	--	--	--	(2/)	--	--
Southeastern	--	--	(2/)	--	--	--	--	--	--	--	--	--	--	--	--
Total	102	105	103	85	81	34	29	33	40	25	3	5	7	6	4
Total Lake States	322	309	314	276	305	92	68	89	88	72	52	41	61	39	25

2/ Less than 500 cords.

(Table 8 continued on next page)

(Table 8 continued)

Unit	Aspen					Birch					Other hardwoods				
	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984
MICHIGAN															
Eastern Upper Peninsula	116	89	93	109	117	29	36	31	40	40	124	119	97	106	114
Western Upper Peninsula	209	201	210	242	212	40	44	38	64	54	163	143	135	161	200
Northern Lower Peninsula	374	350	315	523	620	34	25	19	26	26	206	194	128	144	251
Southern Lower Peninsula	6	12	14	15	13	(2/)	(2/)	1	(2/)	(2/)	8	17	36	40	43
Total	705	652	632	889	962	103	105	89	130	120	501	473	396	451	608
MINNESOTA															
Aspen-Birch	313	352	308	563	619	11	9	1	3	2	30	31	27	40	35
Northern Pine	357	422	504	766	853	4	2	2	1	1	16	19	28	26	24
Central Hardwood	29	27	54	62	56	(2/)	(2/)	(2/)	(2/)	(2/)	2	3	4	3	3
Prairie	(2/)	(2/)	--	1	1	--	--	--	--	--	(2/)	--	--	--	--
Total	699	801	866	1,392	1,529	15	11	3	4	3	48	53	59	69	62
WISCONSIN															
Northeastern	459	415	392	451	435	91	74	69	83	90	181	154	134	190	209
Northwestern	326	469	420	481	522	80	73	74	103	105	186	160	152	175	154
Central	85	79	71	91	107	15	12	11	12	13	82	70	53	56	73
Southwestern	1	1	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	4	3	(2/)	(2/)	1
Southeastern	2	1	1	2	2	(2/)	(2/)	(2/)	(2/)	(2/)	2	2	1	1	2
Total	873	965	884	1,025	1,066	186	159	154	198	208	455	389	340	422	439
Total Lake States	2,277	2,418	2,382	3,306	3,557	304	275	246	332	331	1,004	915	795	942	1,109

2/ Less than 500 cords.

Table 9.--Lake States pulpwood production from roundwood by county and species group, 1984

(In standard cords, unpeeled)

MICHIGAN

Unit and county[1/]	All species	Species group: Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar
E. Upper Peninsula												
Alger	52,781	1,277	2,819	2,519	3,089	3,388	2,604	4,040	407	484	6,086	2,237
Chippewa	44,433	541	1,949	1,052	11,104	4,322	894	5,984	344	106	11,509	598
Delta	132,266	2,304	14,709	3,763	12,764	11,532	4,979	10,914	1,309	586	26,987	6,401
Luce	25,917	125	1,863	2,720	5,790	713	317	3,954	193	62	5,798	516
Mackinac	55,796	716	3,322	2,377	2,302	1,652	619	4,594	278	294	21,146	1,884
Menominee	108,281	2,518	15,379	7,185	3,235	3,795	2,647	7,546	1,304	512	36,526	4,366
Schoolcraft	90,813	1,725	4,727	4,859	24,273	10,749	2,553	5,503	1,147	330	8,853	2,958
Total	510,287	9,206	44,768	24,475	62,557	36,151	14,613	42,535	4,982	2,374	116,905	18,960
W. Upper Peninsula												
Baraga	84,560	790	1,303	8,576	6,163	1,409	632	1,195	338	471	32,598	--
Dickinson	82,509	607	6,493	2,802	2,290	1,674	949	6,519	642	241	42,328	2,268
Gogebic	72,287	--	1,333	1,176	2,205	2,601	1,921	2,415	--	2,444	13,730	--
Houghton	29,836	--	702	1,105	3,458	639	23	469	156	441	10,699	--
Iron	142,161	788	8,873	1,684	2,853	2,754	2,301	10,355	876	1,623	56,983	1,736
Keweenaw	93	--	--	65	--	--	--	13	--	--	--	--
Marquette	161,846	2,682	11,600	6,705	27,267	6,223	3,992	11,855	2,625	681	31,835	7,411
Ontonagon	61,233	--	545	281	991	2,187	823	330	39	285	24,071	--
Total	634,525	4,867	30,849	22,394	45,227	17,487	10,641	33,151	4,676	6,186	212,144	11,415
N. Lower Peninsula												
Alcona	63,724	--	95	--	1,643	513	21	17	--	579	46,154	1,788
Alpena	31,798	--	116	--	1,158	--	--	56	--	427	22,531	1,015
Antrim	8,765	--	--	--	34	101	--	--	--	67	6,342	23
Arenac	714	--	--	--	20	--	--	--	--	3	650	31
Bay	64	--	--	--	--	--	--	--	--	--	54	--
Benzie	13,302	--	--	--	37	399	1	--	--	167	6,041	--
Charlevoix	20,637	--	--	--	84	--	--	--	--	367	14,265	88
Cheboygan	70,317	--	537	--	1,854	67	--	160	--	804	50,975	781
Clare	28,756	--	--	--	264	160	7	--	--	16	24,652	52
Crawford	36,065	--	--	--	10,336	1,515	58	--	--	10	16,337	48
Emmet	13,134	--	12	--	57	1,230	--	11	--	150	8,931	64
Gladwin	19,619	--	--	--	1,456	17	--	--	--	63	16,393	263
Grand Traverse	14,021	--	42	--	329	330	5	--	--	104	8,374	--
Iosco	14,892	--	--	--	4,418	894	24	--	--	310	5,977	194
Isabella	6,216	--	--	--	--	--	--	--	--	--	5,504	--
Kalkaska	21,078	--	--	--	4,401	1,354	13	--	--	48	11,801	--
Lake	61,939	--	--	--	3,681	1,615	35	--	--	223	28,147	--
Leelanau	1,273	--	--	--	--	--	--	--	--	--	693	--
Manistee	48,374	--	--	--	888	1,607	36	--	--	735	17,586	--
Mason	35,653	--	--	--	222	222	8	--	--	208	23,107	--
Mecosta	38,604	--	--	--	162	648	5	--	--	35	34,760	--
Midland	8,797	--	--	--	--	--	--	--	--	104	7,029	313
Missaukee	45,407	--	--	--	1,501	1,377	--	--	--	96	36,325	4
Montmorency	61,573	--	--	--	8,027	372	--	--	--	737	37,090	624
Newaygo	40,272	--	--	--	4,924	2,764	62	--	--	89	21,362	--
Oceana	19,967	--	--	--	114	114	4	--	--	70	11,942	--
Ogemaw	41,844	--	11	--	10,510	676	20	--	--	396	18,494	269
Osceola	34,846	--	--	--	155	41	--	--	--	67	25,862	2
Oscoda	52,061	--	33	--	9,570	1,329	46	11	--	337	31,526	510
Otsego	20,852	--	--	--	2,411	1,391	20	--	--	120	13,005	184
Presque Isle	43,132	--	1,802	--	1,406	69	--	743	--	712	27,982	943
Roscommon	42,798	--	166	--	9,188	857	15	55	--	140	24,331	74
Wexford	43,853	--	--	--	1,696	3,852	27	--	--	222	15,466	--
Total	1,004,347	--	2,814	--	80,546	23,514	407	1,053	--	7,406	619,698	7,270
S. Lower Peninsula												
Allegan	13,106	--	--	--	--	--	--	--	--	707	1,171	--
Barry	5,650	--	--	--	72	72	3	--	--	256	977	--
Calhoun	516	--	--	--	45	45	2	--	--	--	16	--
Cass	624	--	--	--	--	--	--	--	--	--	--	--
Eaton	18	--	--	--	--	--	--	--	--	--	18	--
Kalamazoo	1,726	--	--	--	9	9	--	--	--	97	96	--
Kent	474	--	--	--	10	10	--	--	--	1	394	--
Montcalm	2,783	--	--	--	10	10	--	--	--	8	2,212	--
Muskegon	16,479	--	--	--	133	133	4	--	--	127	3,213	--
Ottawa	8,420	--	--	--	685	685	26	--	--	102	4,016	--
St. Joseph	2,071	--	--	--	--	--	--	--	--	--	244	--
Van Buren	6,628	--	--	--	10	10	--	--	--	356	680	--
Total	58,495	--	--	--	974	974	35	--	--	1,654	13,027	--
State total	2,207,654	14,073	78,431	46,869	189,304	78,125	25,696	76,739	9,658	17,620	961,774	37,645

[1/] Includes only those counties that supplied pulpwood in 1984.

(Table 9 continued on next page)

(Table 9 continued)

MICHIGAN

Unit and county[1/]	Species group											
	Basswood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
E. Upper Peninsula												
Alger	1,251	2,249	3,046	2,379	--	3,351	--	6,834	4,047	145	--	529
Chippewa	326	596	749	505	--	147	--	1,808	1,304	523	--	72
Delta	3,137	3,421	7,923	4,079	--	1,401	--	6,590	8,844	31	7	585
Luce	260	387	851	367	--	317	--	685	919	34	--	46
Mackinac	940	1,644	2,631	1,352	--	279	--	4,955	3,731	885	--	195
Menominee	1,768	2,031	6,285	2,509	--	575	--	5,893	3,394	385	44	384
Schoolcraft	1,872	2,330	4,377	2,728	--	707	--	4,122	6,624	16	5	355
Total	9,554	12,658	25,862	13,919	--	6,777	--	30,887	28,863	2,019	56	2,166
W. Upper Peninsula												
Baraga	733	--	1,749	3,590	--	12,853	--	7,525	3,686	111	--	838
Dickinson	1,993	16	7,193	636	--	530	--	2,044	2,887	145	10	242
Gogebic	1,346	--	301	5,533	--	10,377	--	20,116	4,645	200	--	1,944
Houghton	99	--	719	971	--	2,232	--	5,700	1,529	512	5	477
Iron	1,090	1,448	6,155	5,557	--	10,973	--	16,716	7,887	111	8	1,390
Keweenaw	--	--	--	--	--	--	--	--	--	--	--	15
Marquette	4,167	4,295	11,609	5,310	--	1,196	--	11,712	9,269	618	8	786
Ontonagon	3,424	--	615	3,655	--	3,812	--	10,511	9,072	380	--	212
Total	12,852	5,759	28,341	25,252	--	41,973	--	74,324	38,975	2,077	31	5,904
N. Lower Peninsula												
Alcona	67	103	2,002	--	--	--	--	1,054	2,295	6,640	738	15
Alpena	42	63	1,950	--	--	--	--	201	1,951	2,062	226	--
Antrim	143	98	20	19	--	10	--	1,142	135	592	--	39
Arenac	--	--	--	--	--	--	--	1	9	--	--	--
Bay	--	--	--	--	--	--	--	--	--	--	--	--
Benzie	208	104	355	21	--	52	--	941	3,140	1,616	22	198
Charlevoix	138	141	407	83	--	--	--	2,246	1,612	1,189	--	17
Cheboygan	354	343	3,797	75	--	--	--	5,051	2,844	2,637	38	--
Clare	--	--	336	--	--	--	--	21	446	2,074	728	--
Crawford	48	145	10	--	--	--	--	3,279	168	2,937	1,125	49
Emmet	38	141	88	23	--	--	--	1,335	280	719	2	53
Gladwin	1	1	133	--	104	--	--	333	464	355	36	--
Grand Traverse	104	104	188	--	--	--	--	104	522	2,717	1,040	58
Iosco	31	47	777	--	--	--	--	80	1,281	774	85	--
Isabella	--	--	--	--	--	--	--	--	89	299	324	--
Kalkaska	101	40	111	61	--	--	--	1,229	225	1,345	288	61
Lake	--	--	750	--	--	--	--	161	3,316	19,815	4,099	97
Leelanau	--	--	--	--	--	--	--	21	74	485	--	--
Manistee	1,042	1,355	2,090	521	--	625	--	1,988	5,249	10,496	2,953	1,203
Mason	193	--	970	--	--	--	--	156	5,209	3,991	1,291	76
Mecosta	--	--	35	--	--	--	--	45	967	1,603	344	--
Midland	--	--	833	--	417	--	--	1	73	22	5	--
Missaukee	56	8	215	--	--	--	--	382	4,563	668	151	61
Montmorency	274	293	2,078	--	--	--	--	3,557	1,244	6,678	493	106
Newaygo	35	104	89	--	--	--	--	330	3,107	5,614	1,792	--
Oceana	--	--	644	--	--	--	--	95	2,353	3,728	903	--
Ogemaw	35	44	1,217	--	--	--	--	1,214	1,473	6,072	1,383	30
Osceola	3	8	789	5	--	--	--	251	3,647	3,191	814	11
Oscoda	63	69	921	--	--	--	--	3,289	740	3,029	492	96
Otsego	146	120	272	28	--	--	--	1,720	247	1,108	52	28
Presque Isle	91	106	2,704	16	--	--	--	1,669	2,769	1,975	145	--
Roscommon	--	--	665	16	--	--	--	1,704	1,030	3,713	829	15
Wexford	208	209	533	104	--	104	--	4,485	10,848	4,708	1,156	235
Total	3,421	3,646	24,979	972	521	791	--	38,085	62,370	102,852	21,554	2,448
S. Lower Peninsula												
Allegan	168	642	4	--	278	653	240	592	2,676	3,521	2,454	--
Barry	60	229	--	--	99	232	85	209	989	1,506	861	--
Calhoun	--	--	--	--	--	--	--	--	--	279	129	--
Cass	--	--	--	--	--	--	--	--	--	--	--	624
Eaton	--	--	--	--	--	--	--	--	--	--	--	--
Kalamazoo	23	89	--	--	38	90	33	81	365	463	333	--
Kent	--	--	1	--	--	--	--	1	7	52	8	--
Montcalm	--	--	8	--	--	--	--	10	56	380	89	--
Muskegon	--	--	127	--	--	--	--	168	1,833	8,504	2,237	--
Ottawa	18	70	26	--	30	71	26	98	461	1,582	524	--
St. Joseph	--	--	--	--	--	--	210	--	232	1,174	211	--
Van Buren	85	326	--	--	141	331	122	298	1,344	1,700	1,225	--
Total	354	1,356	166	--	586	1,377	716	1,457	7,963	19,161	8,071	624
State total	26,181	23,419	79,348	40,143	1,107	50,918	716	144,753	138,171	126,109	29,712	11,142

(Table 9 continued on next page)

1/ Includes only those counties that supplied pulpwood in 1984.

(Table 9 continued)

MINNESOTA

Unit and county[1/]	All species	Species group: Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar
Aspen-Birch												
Carlton	31,411	--	2,484	--	677	449	124	1,599	59	--	23,906	2,113
Cook	60,739	--	10,816	--	6,316	143	263	13,536	--	--	29,280	385
Koochiching	289,309	--	29,029	--	10,499	6,087	83	33,453	4,873	52	194,016	10,512
Lake	105,185	--	10,787	--	6,364	1,877	2,649	16,388	728	--	64,939	1,114
St. Louis	453,044	--	35,087	--	37,669	19,646	7,007	24,852	638	--	306,569	20,711
Total	939,688	--	88,203	--	61,525	28,202	10,126	89,828	6,298	52	618,710	34,835
Northern Pine												
Aitkin	66,204	--	552	--	196	107	31	443	557	--	58,763	5,492
Becker	18,399	--	--	--	1,065	255	40	--	19	--	15,891	1,129
Beltrami	160,796	--	11,555	--	7,292	1,711	265	6,676	1,938	117	127,474	3,106
Cass	152,722	--	3,442	--	12,449	2,146	278	714	458	201	129,647	2,157
Clearwater	75,064	--	1,559	--	1,407	432	80	1,512	634	--	67,910	1,412
Crow Wing	31,629	--	61	--	4,886	521	--	101	--	--	26,060	--
Hubbard	112,362	--	414	--	4,512	1,206	265	2,063	88	--	100,849	2,965
Itasca	374,033	--	38,910	--	10,330	4,863	528	7,696	1,015	--	304,509	6,171
Lake of the Woods	33,605	--	903	--	13,359	2,264	--	6,590	161	--	9,662	666
Mahnomen	8,724	--	--	--	360	--	--	--	117	--	8,106	141
Roseau	7,904	--	149	--	5,798	--	--	1,918	39	--	--	--
Wadena	12,346	--	--	--	6,656	951	186	--	--	--	4,482	71
Total	1,053,788	--	57,545	--	68,310	14,456	1,673	27,713	5,026	318	853,353	23,310
Central Hardwood												
Kanabec	3,171	--	--	--	--	--	--	--	--	--	3,171	--
Mille Lacs	18,496	--	--	--	167	60	--	35	10	--	18,224	--
Morrison	10,400	--	--	--	156	17	--	--	--	--	10,227	--
Otter Tail	72	--	--	--	--	--	--	--	72	--	--	--
Pine	28,443	--	--	--	1,022	640	186	--	30	--	23,505	2,817
Sherburne	1,907	--	--	--	1,247	654	6	--	--	--	--	--
Todd	834	--	--	--	156	17	--	--	--	--	661	--
Total	63,323	--	--	--	2,748	1,388	192	35	112	--	55,788	2,817
Prairie												
Polk	1,136	--	--	--	--	--	--	--	94	--	1,042	--
Stevens	13	--	--	--	--	13	--	--	--	--	--	--
Total	1,149	--	--	--	--	13	--	--	94	--	1,042	--
State total	2,057,948	--	145,748	--	132,583	44,059	11,991	117,576	11,530	370	1,528,893	60,962

[1/] Includes only those counties that supplied pulpwood in 1984.

(Table 9 continued on next page)

(Table 9 continued)

MINNESOTA

Unit and county[1]	Species group											
	Basswood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
Aspen-Birch												
Carlton	--	--	--	--	--	--	--	--	--	--	--	--
Cook	--	--	--	--	--	--	--	--	--	--	--	--
Koochiching	--	--	497	--	--	--	--	156	52	--	--	--
Lake	--	--	339	--	--	--	--	--	--	--	--	--
St. Louis	--	--	865	--	--	--	--	--	--	--	--	--
Total	--	--	1,701	--	--	--	--	156	52	--	--	--
Northern Pine												
Aitkin	--	--	63	--	--	--	--	--	--	--	--	--
Becker	--	--	--	--	--	--	--	--	--	--	--	--
Beltrami	--	--	464	--	--	64	--	124	10	--	--	--
Cass	--	--	954	--	--	151	--	58	67	--	--	--
Clearwater	--	--	52	--	--	--	--	52	14	--	--	--
Crow Wing	--	--	--	--	--	--	--	--	--	--	--	--
Hubbard	--	--	--	--	--	--	--	--	--	--	--	--
Itasca	--	--	11	--	--	--	--	--	--	--	--	--
Lake of the Woods	--	--	--	--	--	--	--	--	--	--	--	--
Mahnomen	--	--	--	--	--	--	--	--	--	--	--	--
Roseau	--	--	--	--	--	--	--	--	--	--	--	--
Wadena	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	1,544	--	--	215	--	234	91	--	--	--
Central Hardwood												
Kanabec	--	--	--	--	--	--	--	--	--	--	--	--
Mille lacs	--	--	--	--	--	--	--	--	--	--	--	--
Morrison	--	--	--	--	--	--	--	--	--	--	--	--
Otter Tail	--	--	--	--	--	--	--	--	--	--	--	--
Pine	--	--	243	--	--	--	--	--	--	--	--	--
Sherburne	--	--	--	--	--	--	--	--	--	--	--	--
Todd	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	243	--	--	--	--	--	--	--	--	--
Prairie												
Polk	--	--	--	--	--	--	--	--	--	--	--	--
Stevens	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--	--	--	--
State total	--	--	3,488	--	--	215	--	390	143	--	--	--

(Table 9 continued on next page)

[1] Includes only those counties that supplied pulpwood in 1984.

(Table 9 continued)

WISCONSIN

Unit and county[1/]	All species	Species group: Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar
Northeastern												
Florence	74,472	137	6,735	3,023	2,222	2,954	749	4,816	194	1,133	38,191	36
Forest	141,814	--	12,200	2,087	279	6,684	152	9,766	165	4,866	50,176	--
Langlade	118,351	--	4,697	873	1,173	3,763	10	1,103	79	3,959	47,914	--
Lincoln	98,468	--	3,269	1,233	1,525	4,857	356	1,647	302	5,326	47,191	--
Marinette	153,737	--	12,385	719	9,990	7,528	322	2,941	456	1,758	99,369	938
Menominee	49,410	--	--	10,570	8,133	1,671	2,795	--	--	379	13,263	--
Oconto	50,824	--	1,173	163	5,105	6,441	253	163	56	673	31,156	--
Oneida	148,129	--	11,506	1,022	10,134	12,399	2,199	9,214	667	3,174	52,583	--
Shawano	21,238	--	46	833	527	4,160	205	20	58	385	8,270	--
Vilas	106,537	--	7,881	925	7,384	5,285	2,042	3,527	88	874	47,119	--
Total	962,980	137	59,892	21,448	46,472	55,742	9,083	33,197	2,065	22,527	435,232	974
Northwestern												
Ashland	98,913	--	6,047	127	1,230	6,578	196	3,536	369	2,939	47,897	--
Barron	7,383	--	--	--	649	355	15	--	--	7	5,380	--
Bayfield	186,500	--	902	--	27,673	11,354	2,073	30	80	616	110,810	634
Burnett	64,767	--	--	--	18,930	3,580	232	12	25	27	41,226	211
Douglas	112,914	--	2,750	--	38,682	6,232	536	157	4	593	54,912	634
Iron	60,093	--	1,483	409	268	1,200	314	527	74	891	31,912	--
Polk	3,013	--	--	19	1,029	262	18	--	--	1	1,596	--
Price	110,165	--	4,919	921	1,892	3,283	202	1,372	442	5,548	47,267	--
Rusk	63,978	--	219	119	--	1,454	--	78	48	3,699	32,710	--
Sawyer	128,327	--	1,614	215	1,357	2,918	180	1,527	209	3,676	80,024	--
Taylor	63,414	--	1,948	827	28	3,036	--	418	215	2,046	25,409	--
Washburn	63,045	--	191	--	8,261	5,106	536	40	--	638	43,265	--
Total	962,512	--	20,073	2,637	99,999	45,358	4,302	7,697	1,466	20,681	522,408	1,479
Central												
Adams	35,447	--	24	--	13,313	14,730	1,988	--	--	28	343	--
Chippewa	25,686	--	11	--	728	886	36	50	--	1,182	13,946	--
Clark	50,766	--	44	6	1,580	2,933	131	14	--	1,251	25,878	--
Eau Claire	14,698	--	65	--	3,117	6,416	51	--	--	49	2,355	--
Jackson	39,589	--	--	35	20,138	6,666	649	--	--	21	5,335	--
Juneau	26,121	--	--	369	15,366	3,691	76	--	--	73	2,081	--
Marathon	58,113	--	506	546	1,515	8,304	418	282	10	666	30,420	--
Marquette	12,270	--	--	--	679	7,416	1,147	11	22	208	394	--
Monroe	17,602	--	--	--	9,104	5,693	435	--	--	71	389	--
Portage	24,357	--	73	60	3,468	7,323	1,917	295	251	253	6,200	--
Waupaca	16,729	--	--	22	218	5,974	572	49	35	473	6,474	--
Waushara	26,278	--	--	--	4,610	18,827	1,775	--	--	--	961	--
Wood	29,897	--	--	10	3,558	5,439	1,350	80	6	350	11,788	--
Total	377,553	--	723	1,048	77,394	94,298	10,545	781	324	4,625	106,564	--
Southwestern												
Buffalo	1,382	--	--	--	106	1,139	132	--	--	--	5	--
Crawford	24	--	--	--	--	--	--	--	--	--	24	--
Dunn	11,235	--	--	--	2,639	8,170	252	--	--	--	--	--
Grant	8	--	--	--	--	--	--	--	--	--	8	--
Iowa	35	--	--	--	--	35	--	--	--	--	--	--
La Crosse	898	--	--	--	58	774	66	--	--	--	--	--
Pepin	398	--	--	--	47	223	34	42	--	--	--	--
Pierce	26	--	--	--	--	--	--	--	--	2	--	--
Richland	185	--	--	--	53	132	--	--	--	--	--	--
St. Croix	237	--	--	--	74	163	--	--	--	--	--	--
Sauk	7,473	--	--	--	2,082	4,660	572	--	--	2	--	--
Trempealeau	5,720	--	--	--	50	247	4,908	40	--	--	8	--
Total	27,621	--	--	--	5,109	15,543	5,954	82	--	4	45	--
Southeastern												
Brown	331	--	--	--	--	14	--	--	--	--	317	--
Columbia	10,782	--	--	--	685	7,124	1,252	--	--	4	--	--
Door	1,694	--	--	--	21	6	--	--	--	--	1,667	--
Fond du Lac	34	--	--	--	--	11	23	--	--	--	--	--
Green Lake	1,816	--	--	--	38	1,396	382	--	--	--	--	--
Manitowoc	15	--	--	--	--	15	--	--	--	--	--	--
Outagamie	792	--	--	--	--	345	50	--	--	5	299	--
Ozaukee	24	--	--	--	--	24	--	--	--	--	--	--
Sheboygan	754	--	--	--	--	647	107	--	--	--	--	--
Walworth	149	--	--	--	--	149	--	--	--	--	--	--
Waukesha	1,294	--	--	--	--	1,030	264	--	--	--	--	--
Total	17,685	--	--	--	744	10,761	2,078	--	--	9	2,283	--
State total	2,348,351	137	80,688	25,133	229,718	221,702	31,962	41,757	3,855	47,846	1,066,532	2,453

[1/] Includes only those counties that supplied pulpwood in 1984.

(Table 9 continued on next page)

(Table 9 continued)

WISCONSIN

Unit and county[1/]	Species group											
	Basswood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
Northeastern												
Florence	119	--	3,551	892	--	1,871	--	4,608	1,911	773	173	384
Forest	2,110	569	10,980	3,761	--	5,281	68	20,859	8,643	1,006	455	1,707
Langlade	1,508	109	10,009	2,814	--	5,440	--	24,203	8,977	152	50	1,518
Lincoln	1,172	--	5,438	581	--	4,997	--	11,422	8,717	17	--	418
Marinette	129	5	5,703	539	--	1,554	--	4,085	3,721	1,155	283	157
Menominee	2	1,151	412	814	--	3,238	--	3,781	1,856	823	128	394
Oconto	102	--	1,760	91	--	633	--	1,168	1,377	392	98	20
Oneida	1,452	--	21,783	2,121	--	1,503	--	9,988	7,962	119	5	298
Shawano	11	149	990	194	--	1,086	--	2,034	1,368	680	173	49
Vilas	492	--	16,400	1,358	--	312	--	8,769	3,412	391	191	87
Total	7,097	1,983	77,026	13,165	--	25,915	68	90,917	47,944	5,508	1,556	5,032
Northwestern												
Ashland	441	--	7,913	1,250	--	3,579	--	9,248	6,525	826	17	195
Barron	2	--	921	--	--	5	--	4	6	24	14	1
Bayfield	30	--	27,108	301	--	239	--	1,904	1,282	1,420	18	26
Burnett	--	--	325	--	--	14	--	104	25	52	--	4
Douglas	--	--	7,223	86	--	124	--	348	568	65	--	--
Iron	689	--	8,532	820	--	3,396	--	5,408	3,721	306	17	126
Polk	--	--	78	--	--	1	--	1	2	6	--	--
Price	1,080	--	14,443	1,173	--	4,343	--	11,288	10,336	1,216	--	440
Rusk	1,011	--	7,573	426	--	3,673	10	5,252	3,681	3,193	480	352
Sawyer	1,568	--	16,234	1,863	--	1,440	--	8,634	5,241	1,342	168	117
Taylor	784	--	5,528	621	--	2,024	--	7,962	11,532	807	208	21
Washburn	--	--	2,481	32	--	224	--	961	1,073	138	36	63
Total	5,605	--	98,359	6,572	--	19,062	10	51,114	43,992	9,395	958	1,345
Central												
Adams	--	--	55	--	--	22	--	52	112	3,880	899	1
Chippewa	479	--	2,702	499	--	743	--	1,681	1,666	779	269	29
Clark	159	31	4,123	397	--	1,783	21	2,356	4,905	3,558	1,521	75
Eau Claire	17	--	318	21	--	64	--	136	440	1,264	361	24
Jackson	--	--	606	--	--	42	--	101	1,212	3,660	1,044	80
Juneau	--	--	179	--	--	155	--	237	272	2,702	913	7
Marathon	195	--	1,095	368	--	5,121	--	2,983	4,859	648	150	27
Marquette	--	--	208	--	--	52	--	177	83	1,274	599	--
Monroe	--	--	276	--	--	102	--	152	304	837	211	28
Portage	17	--	514	--	--	129	--	358	550	2,011	880	58
Waupaca	38	--	195	49	--	335	--	431	909	652	258	45
Waushara	--	--	--	--	--	--	--	5	5	94	--	--
Wood	17	--	770	52	--	75	--	592	1,622	2,780	1,408	--
Total	922	31	11,041	1,386	--	8,623	21	9,262	16,939	24,139	8,513	374
Southwestern												
Buffalo	--	--	--	--	--	--	--	--	--	--	--	--
Crawford	--	--	--	--	--	--	--	--	--	--	--	--
Dunn	--	--	52	--	--	--	--	--	--	122	--	--
Grant	--	--	--	--	--	--	--	--	--	--	--	--
Iowa	--	--	--	--	--	--	--	--	--	--	--	--
La Crosse	--	--	--	--	--	--	--	--	--	--	--	--
Pepin	--	--	--	--	--	--	--	--	--	41	21	--
Pierce	--	--	--	--	--	3	--	13	--	8	--	--
Richland	--	--	--	--	--	--	--	--	--	--	--	--
St. Croix	--	--	--	--	--	--	--	--	--	--	--	--
Sauk	--	--	1	--	--	3	--	46	54	35	15	3
Trempealeau	--	--	5	--	--	1	--	36	1	324	98	2
Total	--	--	58	--	--	7	--	95	55	530	134	5
Southeastern												
Brown	--	--	--	--	--	--	--	--	--	--	--	--
Columbia	--	--	156	31	--	8	--	--	104	719	660	39
Door	--	--	--	--	--	--	--	--	--	--	--	--
Fond du Lac	--	--	--	--	--	--	--	--	--	--	--	--
Green Lake	--	--	--	--	--	--	--	--	--	--	--	--
Manitowoc	--	--	--	--	--	--	--	--	--	--	--	--
Outagamie	--	--	9	--	--	15	--	24	25	15	5	--
Ozaukee	--	--	--	--	--	--	--	--	--	--	--	--
Sheboygan	--	--	--	--	--	--	--	--	--	--	--	--
Walworth	--	--	--	--	--	--	--	--	--	--	--	--
Waukesha	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	165	31	--	23	--	24	129	734	665	39
State total	13,624	2,014	186,649	21,154	--	53,630	99	151,412	109,059	40,306	11,826	6,795

[1/] Includes only those counties that supplied pulpwood in 1984.

Table 10.--Central States pulpwood production by State and destination, 1980-1984

(In thousand standard cords, unpeeled)

Year	Illinois			Indiana			Iowa			Missouri		
		Destination			Destination			Destination			Destination	
	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States
1980	102	45	57	178	69	109	44	39	5	105	38	67
1981	100	43	57	185	68	117	32	26	6	111	44	67
1982	76	19	57	185	51	134	14	10	4	81	23	58
1983	91	31	60	226	62	164	16	11	5	114	39	75
1984	82	29	53	206	56	150	20	14	6	86	32	54

Table 11.--Trends in receipts of roundwood and residue as pulpwood, Central States, 1980-1984

(In thousand standard cords, unpeeled)

Type of material and area	1980	1981	1982	1983	1984
Roundwood					
Illinois	19	19	--	--	--
Indiana, Iowa, Missouri	75	60	40	69	62
Total	94	79	40	69	62
Residue					
Illinois	28	3	--	--	--
Indiana, Iowa, Missouri	99	112	63	79	70
Total	127	115	63	79	70
All material	221	194	103	148	132

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Pulpwood production in the North Central Region by County, 1984. Resour. Bull. NC-98. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1986. 26 p.

Discusses 1984 production and receipts and recent production for other years in the Lake and Central States. Shows Michigan, Minnesota, and Wisconsin production by species for each county and compares production by Forest Survey Unit with that of previous years. Presents 1984 production and receipt data for Illinois, Indiana, Iowa, and Missouri, and shows four production classes by county.

KEY WORDS: Roundwood, residue, receipts, Lake States, Central States.

1966-86

NORTH CENTRAL

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